

## SOME NOTES ON ALLEGED METEORIC DUST.

MAGNUS PFLAUM, Pittsburg, Pa.

The Spectroscope has made known that matter is universal; that elements constituting the earth are also contained in other celestial bodies. It is, however, very human to endeavor physically to perceive what mentally we know, especially if the object is from extra-terrestrial spheres.

This feeling of curious interest must have animated the members of the Calcutta Microscopical Society, when, at one of their meetings, a substance was presented to them described as follows :

“ The coarse-grained, dark-colored dust which drifts, as all Calcutta residents are aware, into the leeward corners of our flat house-tops, is found to contain, mixed with dried portions of organic matter, certain magnetic and hyaline granules which present appearances highly indicative of previous fusion. These appear mostly as opaque or translucent spheroidal bodies, sometimes single and isolated, and sometimes composed of more than one spherule fused together, varying in size from  $\frac{1}{1000}$  to  $\frac{1}{200}$  of an inch in diameter. The opaque bodies vary in color from black to rusty red, whilst the transparent spheres, by transmitted light, are light brown or yellowish like colored glass. They frequently include bubbles, patches of granular matter, and more rarely crystals. The surfaces are usually smooth, and occasionally bubble-like protuberances bulge out on the sides. Composite grains are not uncommon in which a glassy mass protrudes from an opaque body. Particles presenting these characters have been obtained from house-tops widely separated from one another and at considerable height, as on the tower of the High Court, facts which are of importance in considering any conclusions as to the origin of this material.”\*

The members inclined to assign to these particles a meteoric origin.

\* Am. Mo. Mic. J., Vol. XIV., page 72.

It was no great leap of thought to cause the writer to speculate upon the possible presence of such "meteoric matter" in the Court House tower at Pittsburg, Pa., though it required more than a leap to carry that thought into action, by climbing the steep ascent to the top floor of the tower. This floor is about 250 feet from the street, with open, narrow windows on all sides, allowing winds to pass in and out in all directions. For this reason comparatively little dust was found in the floor corners. But what little was obtained was an "omnium gatherum," indeed. What it did not contain might be easier to mention. But a magnet separated the desirable matter from the dross, which, upon being cleaned, showed the presence of the identical globules, iron and hyaline, described above, as found in Calcutta.

But were these little strangers sent as visitors from some celestial body? Doubtful. Whether as solid or gas they could not have left their former abode. The law of gravity would prevent even heavier particles to leave a starry globe. Why could they not be made artificially and thrown into the air by glass houses and iron works? Pittsburg having both of these industries in abundance, it seemed proper to make a practical investigation. A visit to a glass house at once proved that no glassy globules can be sent out of the "Clay Pots" wherein glass is melted. The pot is almost hermetically sealed. Fire surrounds the vessel, merely melts, does not vaporize the contents. The pot has no opening permitting glass, or any possible vapor, to escape into a chimney. However by way of precaution some dust was taken from the opening in the pot out of which, when ready, the glass is lifted. Upon examination nothing but grains of sand and fine strings of glass were found. Next, a blast furnace was visited, and a quantity of "flue dust" obtained; but in it nothing but ragged pieces of coke and iron found. The Bessemer converter yielded better results. The cold blast admitted causes a seething white heat in the metal and drives out all impurities, which on reaching a colder stratum of air, are solidified in the form of spherules, and the ground around is covered with what looks like gunshot of all sizes, some

microscopical. These would answer our quest, were it not that no hyaline globules could be found in the gathering.

The next gathering was from the refining department of a rolling mill. After three days of showers, the roof having thereby been well washed, a quantity of fresh deposit was procured. This, upon being cleansed, produced, 'midst iron and other particles of all shapes, the identical globules in large quantity, exactly in every particular described as found in Calcutta. There were not only *regular* iron and hyaline spheres, but all the various *irregular* particles, some even with both hyaline and iron excrescences. There being no doubt that these pretty little bodies are a product of iron mills the question remains, how did they come to Calcutta? If there are no iron works there, then they must be blown across from Europe. The winds blow easterly. In iron works are high chimneys with strong drafts. It is therefore not at all unlikely that these particles are sent up a comparatively high altitude, received by easterly winds and deposited in regions beyond.